

## REMARKS

Reconsideration of this application, in view of the foregoing amendments and the following remarks, is respectfully requested.

### Claim Rejections - 35 USC § 103

Claims 1-6, 10-11, 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Luo et al. U.S. Patent 5,481,488. Applicants respectfully traverse these rejections.

There are three basic criteria to establish a *prima facie* case of obviousness under 35 U.S.C. §103(a). First, there must be some suggestion or motivation in the cited references to modify or combine their teachings; second, there must be reasonable expectation of success; and third, the prior art references must teach or suggest all the claim limitations. See M.P.E.P §2142. As to claims 1, 9, 16, 20, 23, and 26, the combination of cited references does not teach or suggest all the claim limitations.

First, the Examiner has generally rejected these claims using the theory provided in the background section of Luo et al. The Examiner has not cited elements in Luo et al. as describing and teaching elements recited in these claims. Second, The Examiner has not considered every limitation of these claims for example, claim 1 recites two distinct elements 1) a scaled reduced FFT component, and 2) a signal analyzer. Further, the Examiner has cited the function of FFT Butterfly processor described in Luo et al. as describing the function of the signal analyzer. Applicants respectfully point to the Examiner that claim 1 recites two distinct summation steps as follows:

1. A first summation of input magnitudes for N points of the input signal; and
2. A second summation of input magnitudes of each stage of the Fourier Transform to determine stages that experience bit growth.

The second summation as recited in claim 1 includes plurality of summations at various processing stages of the FFT. The summation operation of Luo et al. that the Examiner has

cited, refers to the second summation at each stage of the FFT Butterfly Processor. Further, as to the comparison step, the Examiner has stated that:

“However, Luo et al. further discloses that the overflows of all resultant data from the butterfly units in the same stage have to be detected to obtain the largest overflow bit number. Because the overflows of all resultant data from the butterfly units in the same stage have to be detected, it would have been obvious for one of ordinary skill in the art at the time of the invention that the conventional mechanism for performing FFT butterfly computation can be modified to compare the overflow bits of all the butterfly units in the same stage in order to determine appropriate scaling.” (Emphasis added).

Applicants respectfully point to the Examiner that Luo et al. determines the overflow bits at each stage to determine the largest overflow bit number, which can be used to scale the output of one stage before inputting it to the next stage. In a complete contrast, the comparison step as recited in claim 1 refers to the comparison between the first summation, which Luo et al. does not describe and the second summation that Luo et al. refers to as determining the largest overflow bit number. Therefore, Luo et al. does not teach, suggest, or describe the first summation and comparison operations as recited in claim 1. Accordingly, claims 1, 9, 16, 20, 23, and 26 and those depend therefrom are clearly and patentably distinguishable from Luo et al.

Claims 8-9, 14-15 and 26-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vandenameele-Lepla US Patent Publication 2003/0058787 A1 in view of Williams U.S. Patent 5,717,620. Applicants respectfully traverse these rejections.

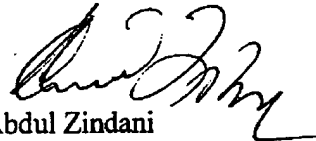
Applicants respectfully point to the Examiner that claims 8-9 depend from claim 1 and claims 14-15 depend from claim 9 and thus, inherit all limitations of their respective independent claims. Claims 1 and 9 were rejected in view of Luo et al.; however, the Examiner has not cited Luo et al. in the rejection of dependent claims and similarly, the cited reference for dependent claims were not cited for their respective independent claims. Therefore, these claims are clearly distinguishable from the cited reference for at least the same reasons as respective independent claims. Further, claims 26-29 include similar limitations as claim 1. Accordingly, these claims are patentably distinguishable from the combination of cited references for at least the same reasons as claim 1.

Claims 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Williams U.S. Patent 5,717,620 in view of Luo et al. U.S. Patent 5,481,488. Applicants respectfully traverse these rejections.

Claim 16 includes limitations similar to claim 1, which has been distinguished from Luo et al. for failing to disclose all limitations of claim 1. Accordingly, claim 16 and those depend therefrom are patentably distinguishable from the combination of cited references for at least the same reasons as claim 1.

Applicant believes this application and the claims herein to be in a condition for allowance. Should the Examiner have further inquiry concerning these matters, please contact the below named attorney for Applicant.

Respectfully submitted,



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